

REMARKS

A. Status of the Claims in the Application

Claims 1 through 6 as amended are under consideration in the application. The amendments are supported throughout the application as filed, for example, on page 6 of the specification as filed and thus do not constitute new matter.

B. Objections to the Title

The Office Action objects to the title of the pending application. The Examiner suggested the following title: "Mammalian cell surface DNA receptor". To expedite prosecution, the specification has been amended to include the above-mentioned title.

C. The claims as filed fulfill the requirements of 35 U.S.C. §112, 1st paragraph

The Office Action rejects Claims 1-6 under 35 U.S.C. §112, first paragraph. The Action asserts that the specification, while enabling for a cell surface DNA receptor (DNA-R) set forth in SEQ ID NO: 2, a DNA binding fragment comprising amino acids 1-575 of the amino acid sequence of SEQ ID NO: 2, or a soluble human DNA-R with the amino acids 1133-1171 of SEQ ID NO:2 are deleted, does not reasonably provide enablement for their derivatives. The Action alleges that "... the claims are broad and encompass any derivatives of the cell surface DNA receptor set forth in SEQ ID NO: 2 since there is no structural and functional limitations for these derivatives."

The Applicants respectfully traverse the rejection and contend that any derivatives encompassed by the claim are enabled. The claimed invention is limited to a homogenous composition or a cell membrane preparation having the amino acid sequence of SEQ ID NO: 2. Thus any potential derivative, like the original composition, is limited to a composition having the amino acid sequence of SEQ ID NO:2. The structural limitation is the claimed amino acid sequence of SEQ ID NO:2. The specification enables one of skill in the art to make and use a composition or preparation or derivative thereof containing the amino acid structure of SEQ ID NO:2.

A "derivative" as defined in the Oxford Dictionary of Biochemistry and Molecular Biology is: "any compound that may, at least theoretically, be formed from

another compound to which it is structurally related.” (Oxford Dictionary of Biochemistry and Molecular Biology, Revised Edition, Smith *et al.* Eds. Oxford University Press Inc., New York, p165) (Applicants herewith submit the reference for the Examiner’s review.). In the present case, the claimed derivatives would be limited to compounds that are structurally related (*i.e.* having the amino acid sequence of SEQ ID. NO:2) to the claimed homogeneous composition or claimed cell membrane preparation. Thus, the specification enables one to make and use a homogeneous composition or a cell membrane preparation having the amino acid sequence identified by SEQ ID NO:2.

Additionally, Applicants wish to make of record their traversal of the assertion in the Office Action that the instant specification “is silent with respect to which amino acid residues or regions are critical for ligand binding, signal transduction, etc. and which residues may be altered without loss of activity.” Applicants direct the Examiner’s attention to pp 24, 25 and 29 of their specification and Figures 3, 4A and 4B, which disclose conserved domains including zinc and Ring finder regions of the claimed DNA-Rs of the invention, particularly in comparison with conserved domains in other zinc-finger region containing proteins.

Applicants respectfully submit that their amendments overcome the asserted ground of rejection under 35 U.S.C. §112, first paragraph, and request that this ground of rejection be withdrawn.

D. The amended claims fulfill the requirements of 35. U.S.C. §112, 2nd paragraph

The Office Action rejects Claims 1-6 under 35 U.S.C. §112, second paragraph for allegedly failing to point out how the recited molecular weights are determined. Applicants have amended the claims to specify that the molecular weights are predicted from the amino acid sequence as set forth in the Sequence Listing and do not account for any post-translational modifications. Applicants respectfully submit that this manner of specifying a molecular weight for a protein based on its amino acid sequence is well-known and accepted in the art, and that one of ordinary skill would understand this convention for determining molecular weights of proteins where a nucleic acid encoding the protein has been isolated. Applicants thus respectfully contend that the claims are not

indefinite because the metes and bounds of the claims would be understood by the skilled artisan, and respectfully request that the Examiner withdraw this ground of amendment.

E. The claims are not anticipated by the cited prior art.

The Office Action rejects Claim 4 under 35 U.S.C. 102(b) as being anticipated by Fantin *et al.* The Action asserts that Fantin *et al.* teach a membrane preparation of 293 cells. The Action reasons that because 293 cells express the claimed cell surface DNA-R as taught by the instant application, Fantin *et al.* teach a cell membrane preparation that inherently contains the claimed DNA-R.

Applicants respectfully contend that Fantin *et al.* do not teach a cell membrane preparation containing any DNA receptor, let alone the DNA-R claimed in the instant application. Applicants contend that there is no evidence of record that membranes prepared according to the methods disclosed by Fantin *et al.* would contain a functional DNA-R as disclosed in the instant specification. Absent such evidence, Applicants respectfully contend that the reference does not contain each and every claim limitation of the pending claims, and thus does not anticipate the claimed invention. Therefore, Applicant's respectfully request that this ground of rejection be withdrawn.

The Office Action rejects Claim 4 under U.S.C. 102(b) as being anticipated by Hefeneider *et al.* The Action asserts that Hefeneider *et al.* teach a cell surface DNA receptor expressed in human peripheral blood mononuclear cells (PBMC). The Action further asserts that Hefeneider *et al.* teach a cell membrane preparation from human PBMC, which contain a cell surface DNA receptor the Examiner asserts is likely to be the same as the claimed receptor.

Applicants respectfully contend that Hefeneider *et al.* do not explicitly teach a cell membrane preparation comprising the DNA-R consisting essentially of a protein encoded by the amino acid depicted in SEQ ID NO:2. The Action ignores the large discrepancy in molecular weight of the two proteins (30KD vs. 150KD) and simply makes the assumption that the DNA receptor disclosed in cited art "... is likely the same receptor as the instantly claimed" without providing any supportive evidence. The Action further asserts that "[e]ven if the cell surface DNA receptor exist, in nature, in the membrane of PBMC. . ." The Applicant's respectfully contend that Hefeneider *et al.* do not teach

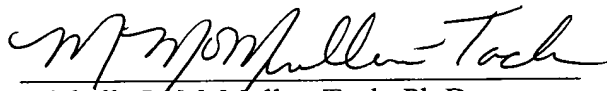
explicitly that the claimed DNA-R protein is indeed expressed in PBMC, nor do they teach that the claimed DNA-R protein is present in the membrane of PBMC. Applicants respectfully contend that Hefeneider *et al.* do not anticipate the pending claims. Accordingly, Applicants respectfully request withdrawal of these grounds of rejection.

CONCLUSION

It is believed that all requirements of patentability are fully met, and allowance of the claims is respectfully requested.

If the Examiner believes it to be helpful, he or she is invited to contact the undersigned agent by telephone at 312-913-3344.

Respectfully submitted,
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